

IN THE CLAIMS

1-21 (canceled)

22. (new) A material based on SiAlONs comprising:

70 to 97 vol % component A comprising alpha- and beta-SiAlON and an amorphous or partially crystalline grain-boundary phase; and

3 to 30 vol.% of component B, a hard material; wherein as a sintered compact the material has an alpha-SiAlON gradient which decreases from the outside to the inside and the alpha-SiAlON content of the as-fired surface ranges up to 100%.

23. (new) The material according to claim 22, wherein said hard material is selected from the group consisting of SiC, Ti(C,N), TiC, TiN, a carbide of an element from one of groups IVb, Vb and VIb of the periodic table, scandium carbide, scandium oxycarbide, a nitride of an element from one of groups IVa, Vb and VIb of the periodic table and mixtures thereof, whose state remains unchanged after sintering.

24. (new) The material according to claim 22, wherein the content of grain-boundary phase is less than 10 vol.%, preferably less than 5 vol.%, and that the grain-boundary phase is amorphous.

25. (new) The material according to claim 22, wherein grain-boundary phase is less than 10 vol.%, preferably less than 5 vol.%, and that the grain-boundary phase is partially crystalline.

26. (new) The material according to claim 22, wherein the grain-boundary phases contain crystalline phases, preferably aluminium-containing melilite or disilicate.

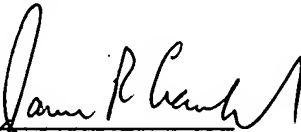
27. (new) The material according to claim 22, wherein the maximum size of the alpha- and beta-SiAlON grains is less than 90 μm .

28. (new) The material according to claim 22, wherein the average grain size of the hard materials is less than 30 μm .
29. (new) The material according to claim 28, wherein said hard material grains are globular, whisker-shaped or platelet-shaped.
30. (new) The material according to claim 22, having a hardness of $> 1550 \text{ HV } 10$.
31. (new) The material according to claim 22, coated with a wear-reducing coatings.
32. (new) A process for producing the material of claim 22 comprising powder mixing, shaping, sintering and grinding.
33. (new) A process according to claim 32, wherein component A is formed during a heat treatment at temperatures of 1800 to 2000°C and retention times at the maximum temperature of 0.5 to 5 hours.
34. (new) A process according to claim 32, wherein gas atmosphere during sintering is inert and contains N_2 or a mixture of N_2 and other inert gases, particularly argon.
35. (new) The material produced by the process of claim 32.
36. (new) The material according to claim 31, wherein said wear-reducing coating is selected from the group consisting of Al_2O_3 , TiN and TiC .

The Commissioner is hereby authorized to charge any deficiency in the fees filed, asserted to be filed or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Deposit Account No. 50-0624, under Order No. NY-DNAG-314-US.

Respectfully submitted

FULBRIGHT & JAWORSKI L.L.P.

By 
James R. Crawford
Reg. No. 39,155

666 Fifth Avenue
New York, New York 10103
(212) 318-3000